

**UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION**

KAIFI LLC,

Plaintiff,

v.

VERIZON COMMUNICATIONS INC., et al,

Defendants.

Case No. 2:20-CV-280-JRG

JURY TRIAL DEMANDED

Honorable Rodney Gilstrap

DECLARATION OF THOMAS L. BLACKBURN (VERIZON)

I, Thomas L. Blackburn declare as follows:

I. INTRODUCTION

1. I am an independent consultant. I am over eighteen years of age and I would be competent to testify as to the matters set forth herein if I am called upon to do so.

2. I have been engaged by plaintiff KAIFI LLC (“KAIFI”) as an expert in this case regarding U.S. Patent No. 6,922,728 (the “’728 Patent”).

3. This declaration is based on the information currently available to me. To the extent that additional information becomes available, I reserve the right to continue my investigation and study, which may include a review of documents and information that may be produced, as well as testimony from depositions that have not yet been taken.

4. I reserve the right to supplement this declaration in the event that Defendants in this case clarify their claim construction positions, or provide supplemental evidence, including expert testimony, in support of their proposed claim constructions.

5. I am being compensated for my time in the amount of \$525 per hour. I have no financial interest in KAIFI or the ’728 Patent, and my compensation is not contingent upon the substance of my declaration, any statements or opinions made, or the outcome of this matter.

II. BACKGROUND AND EXPERIENCE

6. I have studied and practiced in the field of telecommunications, including, in particular, mobile, cellular, wireless technologies, Global Positioning System (“GPS”) technologies, wired technologies, networks, phones, standards, services, and systems for over thirty years.

7. I received my Bachelor of Science from San Jose State University in electrical engineering. I have also taken numerous graduate classes in engineering and business.

8. After earning my engineering degree, I joined GTE Lenkurt, Inc. which was the equivalent to Bell Laboratories. I began working at GTE Lenkurt, Inc. as an Engineering Staff member in the Telephony R&D Group. I designed system line-cards, location register cards and high-grade voice communications coders (vocoders) for use in the PSTN network. I was invited to join GTE's Wire/Wireless Advanced Technology Group and joined a specialized group of GTE engineers, a group with noteworthy achievements – those who file significant numbers of patents and develop future corporate technologies. As a distinguished member of this group, I was promoted to Chief Technical Engineer. This group developed one of the first digital multiplexing systems for use in the PSTN network and several multi-channel voice/data customer subscriber units that were installed in the field.

9. Upon leaving GTE Lenkurt, Inc., I worked as a consultant for Evotech Microengineering from 1985-1995 and Echelon Inc. from 2005-2009 where I provided consulting services including cell phone designs for GSM, WLAN networks, navigation device designs, antenna design/testing and power supply designs.

10. During the period of 1996-2005, I was a founder of GoDigital Telecommunications where I was the Director of Engineering. I was responsible for the development and design for state-of-the-art DSL and ADSL equipment.

11. Since 2005, I have worked as a design consultant and testifying expert in the field of cellular communications, including 2G, 3G and 4G networks.

12. I also provide consulting for various clients related to mobile, cellular, wireless technologies and GPS services.

13. I have been awarded 37 U.S. and Foreign Patents, several related to cellular technologies, including modulation techniques and channel allocations. For example, U.S. Patent No. 6,556,638 describes a method for increasing the data speed in a network (cellular network).

14. I am considered an expert in the area of cellular communications technology, particularly with respect to mobile technology, cellular networks, system roaming and handover.

15. A copy of my latest CV is attached to this declaration as Exhibit A.

III. MATERIALS CONSIDERED

16. In forming my opinions expressed herein, I considered the following items, in addition to my own personal knowledge and experience:

- The '728 Patent and its prosecution history;
- The invalidity contentions served by Verizon in this litigation;
- The claim construction briefing and associated materials from the litigation encaptioned *KAIFI, LLC v. AT&T, Inc., et al.*; Case No. 2:19-cv-00138-JRG (Eastern District of Texas)(the “AT&T Case”), including in particular the Declaration of Brian Kelley (Declaration of Brian T. Kelley, Ph.D.; AT&T Case, Dkt. No. 62-10) and the Court’s Claim Construction Order in that matter (AT&T Case, Dkt. No. 104);
- The parties’ PR 4-1, PR 4-2, and PR 4-3 disclosures;
- 3GPP Technical Standards published prior to December 18, 2001;
- ANSI/IEEE Standard 802.11 (IEEE);
- ANSI/IEEE Standard 802.11a (IEEE);
- ANSI/IEEE Standard 802.11b (IEEE).

IV. LEGAL STANDARDS APPLIED IN MY DECLARATION

17. I have been asked to give expert opinions and technical advice on the meaning of certain terms found in the claims of the '728 Patent.

18. I am not a patent attorney. For the purposes of this declaration, I have been informed about certain aspects of patent law that are relevant to my analysis and opinions, as set forth in this section of my declaration.

19. I am informed and understand that claim construction is a matter of law and will therefore be decided by the Court.

20. I am informed and understand that the specification, which includes the claims, is the single best guide as to the meaning of claim terms.

21. I am informed and understand that the relevant inquiry in claim construction is the question of how a hypothetical person of ordinary skill in the relevant field (sometimes by lawyers referred to as “the relevant art”) at the relevant timeframe (a “POSITA”) would have understood the claim terms at the time of the invention, in light of the patent specification and prosecution history. I further understand that a POSITA is deemed to have read the claim terms in the context of the entire patent and its prosecution history.

22. I understand that a POSITA is presumed to be a person with at least a particular level of skill and knowledge in a certain field or industry, who is capable of understanding and practicing the technology described in the patent at issue. This person is assumed to have ordinary, not extraordinary, skill.

23. I understand that the hypothetical POSITA is considered to have the normal skills and knowledge of a person in a certain technical field. I understand that factors that may be considered in determining the level of ordinary skill in the art include: (1) the education level of

the inventor; (2) the types of problems encountered in the art; (3) the prior art solutions to those problems; (4) rapidity with which innovations are made; (5) the sophistication of the technology; and (6) the education level of active workers in the field.

24. I also understand that a POSITA is presumed to be aware of the universe of available prior art. I also understand the level of ordinary skill in the art can be evidenced by the prior art. Accordingly, I have also considered the prior art discussed herein in determining the level of ordinary skill in the art.

25. In determining whom a POSITA would be, I considered the '728 Patent, the types of problems encountered in the field of roaming between different networks on mobile terminals, the known prior art solutions to those problems, and the educational level of workers active in the field. Based on these factors, I have concluded that a POSITA during the relevant timeframe would have had a bachelor's degree in computer engineering, electrical engineering or a related field, and at least 2-3 years of industry experience related to the design, analysis, and/or development of computer inter-networking systems and heterogeneous network (wire and wireless) inter-communications services, systems, and/or devices. Related postgraduate education or academic experience may suffice in lieu of related industry experience.

26. Based on my experience, I have an understanding of the capabilities of a POSITA in the relevant field. Further, I myself, had those capabilities at the time the '728 patent was effectively filed. Indeed, given my education and extensive industry experience, I exceed the education and work experience levels of a POSITA, but I nonetheless provide my opinions herein from the viewpoint of a POSITA unless I state otherwise.

V. THE '728 PATENT

27. The '728 Patent and more particularly the invention, relates to a wireless mobile communication system that can be summarized as a network connecting and roaming system.

This wireless mobile communication system provides an internet connection switching system and method which allows a user to wirelessly connect with the internet through an indoor wired LAN when a mobile data communications terminal is located indoors and allows the user to connect with the internet through a wireless LAN network or an outdoor wireless internet network of a wireless packet network when it is located outdoors.

28. Mobile device users require always on connection services which allows a device to move seamlessly between networks by re-assigning primary network connectivity of the mobile device to an AP (access point). The '728 Patent discloses a novel method or algorithm to achieve this seamless switching between dissimilar networks.

29. This technique provides the mobile device with the capability to operate in a wider coverage area as well as to de-load the primary network and reduce congestion.

VI. CLAIM CONSTRUCTION

30. I am informed and understand that claims 1-7, 9-15, and 17-20 of the '728 Patent are in dispute.

31. I am informed and understand that the following claim terms of the '728 Patent are in dispute:

No.	Claim Term	Appears In
1	“selecting one of the indoor and the outdoor networks in accordance with the determined location of the data communication terminal”	Claim 1
2	“a second step of determining whether when indoor system ID information is received by the data communication terminal and the received indoor system ID information is identical to indoor system ID information stored in the location register”	Claim 12

32. In my opinion, a POSITA would understand these terms to have the meanings as described below.

A. **“selecting one of the indoor and the outdoor networks in accordance with the determined location of the data communication terminal”**

33. I understand KAIFI contends that this term requires no additional construction.

34. I understand that Defendants contend that this term should mean “selecting one of the indoor and outdoor networks based on the determined location stored in the location register of the data communication terminal.”

35. In my opinion, a POSITA would understand the term as written according to its plain and ordinary meaning and no additional construction is necessary. The claim language states “selecting one of the indoor and the outdoor networks in accordance with the determined location of the data communication terminal,” and Defendants have improperly inserted additional limiting language into the middle of the claim term, as shown in bold below:

“selecting one of the indoor and the outdoor networks in accordance with the determined location **stored in the location register** of the data communication terminal”

There is no justification to insert the “stored in the location register” language into the claim and doing so constitutes adding a limitation that is not supported based on the specification or claims.

36. Upon my review of the specification and my knowledge of the relevant art of at the time of the ’728 Patent, I have seen no evidence suggesting that the “determined location” must be stored in “the location register of the data communication terminal.” In my opinion, Defendants are improperly restricting the claims of the ’728 Patent with regard to how and where the location register may be implemented and where location information may be stored.

37. I understand that the Court previously construed the term “location register” to mean “register that records the location of the data communication terminal.” *See* AT&T Case Dkt. No. 104 at p. 42.

38. I understand the Court previously construed the term “location information” to mean “information on a locational area or indoor system ID information or both.” *See* AT&T Case, Dkt. No. 104 at p. 36.

39. I see no evidence suggesting that the location register is required to be located in any particular physical structure. Claim 1 itself does not specify which components of the system must be housed in the same physical device, but rather leaves open the possibility that one or more subparts of the system can be implemented as separate infrastructure elements or grouped together into one or more physical units. I also see no evidence suggesting that the storage of location information must be limited to any particular location register or registerers. In other words, information on a locational area or indoor system ID information or both can be stored in one or more elements of the distributed location register.

40. At the time of the ’728 Patent, the concept of distributed storage of data, as well as the distribution of network functions, across multiple physical locations was well known.

41. One example of this is the OSI model of communication. *See, e.g.*, Exhibit B, “Towards a flexible functional split for cloud-ran networks”, A. Maeder, M. Lalam, A. De Domenico, E. Pateromichelakis, D. Wubben, J. Bartelt, R. Fritzsche, and P. Rost, in 2014 European Conference on Networks and Communications (EuCNC), pp. 1–5, IEEE (2014). In OSI, the protocol layers for wireless communication may be present even if the part of the physical layer is not present. As noted by Dr. Kelley, access point “functions can be flexibly distributed and moved to gateway servers. So, for example the gateway may process some or all layers of the OSI stack that naturally arise in the wireless data communication terminal.” *See* AT&T Case, Dkt. No. 62-10, Kelley Decl. at ¶ 25. I note that although the Maeder paper was published in 2014, it describes the OSI model as it was known around the time of the ’728

Patent. The relevant aspects of the OSI model of communication have been known since at least the mid-1980s. *See, e.g.*, Exhibit C, a portion of https://en.wikipedia.org/wiki/OSI_model.

42. Other examples are some of the 3GPP standards, which also describe the distribution of functions across various physical structures. *See, e.g.*, Exhibit D, “Mobile Agent-Based Performance Management for the Virtual Home Environment,” C. Bohoris, G. Pavlou, and A. Liotta, *Journal of Network and Systems Management*, Vol. 11, No. 2, June 2003 at p. 143 (“a network element can be characterized as a black box with pre-programmed management capabilities. With the evolution of the telecommunications industry, we see today support for distributed object architectures at the network element level”); *see also* Exhibit E, 3GPP Technical Specification 22.121 v4.0.0, *The Virtual Home Environment (Release 4)*, October 2000.

43. As another example, network functions like those commonly contained in routers were known to be distributable across multiple network elements or nodes at the time of the ’728 Patent. *See, e.g.*, Exhibit F, M. Duser, E. Kozlovski, R. I. Killey, P. Bayvel, “Distributed router architecture for packet-routed optical networks”, *Proc. 14th Working Conference on ONDM* 2000, February 2000, pp. 202-221.

44. The specification describes that the location register can be distributed across multiple locations: “The location register 80 is the home agent HA or the foreign agent FA which operates in accordance with the mobile IP protocol and records a current location of a data communication subscriber.” ’728 Patent at 9:12-15. Figures 1-2 show an embodiment of the inventions in the ’728 Patent in which there is employed the “HA/FA Location Register.” HA/FA refer to “home agent” / “foreign agent.” I note that this embodiment is merely optional. But this embodiment confirms that the boxes and circles in Figures 1-2 are not intended to

represent single physical structures. This is because the home agent and foreign agent, which are depicted in the figures as within one circle, are described in the specification as distinct software programs without reference to physical location. Because they are distinct software programs, they can run on any general purpose computer and can be distributed across more than one network element. *See, e.g.*, Exhibit G, Y. Mao, B. Knutsson, H. Lu, and J. Smith. DHARMA: Distributed Home Agent for Robust Mobile Access. in Proc of the IEEE Infocom 2005 Conference, March 2005 at 1197-98. Claim 1 itself does not specify which components of the system must be housed in the same physical device, but rather leaves open the possibility that one or more subparts of the system can be implemented as separate infrastructure elements or grouped together into one or more physical units.

45. There is nothing present in either the asserted claims or the specification that forecloses the possibility of the functions of the location register being distributed across more than one network element or requiring that location information (*i.e.*, information on a locational area or indoor system ID information or both) must be stored at any particular physical element or group of elements. Defendants are incorrect to extent they are asserting that when selecting the network path the for the data communication terminal, the selection process must use the “determined location of the data communication terminal” that is “stored in the location register of the data communication terminal.” There is no such requirement in the specification or the claims. Rather, when selecting the network path for the data communication terminal, the system can use location information stored on the terminal itself, stored in other elements of the network, or in distributed storage in both the terminal and one or more other network elements. Consistent with the specification, a POSITA would recognize that the network functionality and/or data storage associated with the location register may be located (a) in the same physical

device as the data communication terminal, (b) on a physical device separate from the data communication terminal, or (c) distributed between memory in the data communication terminal and memory in other network elements. Simply put, the '728 Patent is not about the physical implementation layer. Accordingly, the location information (*i.e.*, information on a locational area or indoor system ID information or both) used to select a network path for the data communication terminal is not limited in the way suggested by Defendants' construction, which improperly requires the location information used to select a network path to be located in a location register, or part of a location register, stored on the data communication terminal.

46. It is therefore my opinion that a POSITA would have understood "selecting one of the indoor and the outdoor networks in accordance with the determined location of the data communication terminal" according to its plain and ordinary meaning and the term does not require any additional construction. In other words, a POSITA would understand that this term does not include the limiting language inserted by Defendants – that the information used to switch network paths for the terminal must be "stored in the location register of the data communication terminal."

B. "a second step of determining whether when indoor system ID information is received by the data communication terminal and the received indoor system ID information is identical to indoor system ID information stored in the location register"

47. I understand KAIFI contends that the term "second step of determining whether when indoor system ID information is received by the data communication terminal and the received indoor system ID information is identical to indoor system ID information stored in the location register" should be construed as "a second step of determining whether the received indoor system ID information is identical to indoor system ID information stored in the location register when indoor system ID information is received by the data communication terminal."

48. I understand that in the AT&T Case, Dr. Kelley opined that the proper construction for the term “second step of determining whether when indoor system ID information is received by the data communication terminal and the received indoor system ID information is identical to indoor system ID information stored in the location register” was “a second step of determining whether the received indoor system ID information is identical to indoor system ID information stored in the location register when indoor system ID information is received by the data communication terminal.” *See* Kelley Decl. at ¶¶ 259-268.

49. I understand that the Court previously construed the term “second step of determining whether when indoor system ID information is received by the data communication terminal and the received indoor system ID information is identical to indoor system ID information stored in the location register” to mean “a second step of determining whether the received indoor system ID information is identical to indoor system ID information stored in the location register when indoor system ID information is received by the data communication terminal.” *See* AT&T Case Dkt. No. 104 at pp. 52-53. I further understand that the Court expressly found that this term was not indefinite. *Id.* at p. 53.

50. I understand that Defendants contend that this term is indefinite.

51. In my opinion, consistent with Dr. Kelley’s assessment of this term and the assessment of the Court in AT&T, the correct understanding that a POSITA would have of this term as used in the ’728 Patent is “a second step of determining whether the received indoor system ID information is identical to indoor system ID information stored in the location register when indoor system ID information is received by the data communication terminal.”

52. It is my further opinion that this term is not indefinite.

53. This term is present in Claim 12 of the ’728 Patent:

An internet network connecting and roaming method for providing internet communication service to a data communication terminal of a user moving indoors or outdoors using an outdoor wireless internet network including an antenna, a router and a location register, and an indoor network including an indoor gateway connectable with an internet network, the method comprising:

a first step of providing the user with a communication service by connecting with the outdoor wireless internet network when the user is located outdoors;

a second step of determining whether when indoor system ID information is received by the data communication terminal and the received indoor system ID information is identical to indoor system ID information stored in the location register;

a third step of going through authentication of an indoor location of the data communication terminal by the location register and storing the indoor location into the location register if it is determined in the second step that the two of ID information are equal to each other;

a fourth step of connecting with the internet network by switching connection of the data communication terminal from the outdoor wireless internet network to the indoor gateway and making wireless communications through the indoor gateway and an indoor wireless connection module;

a fifth step of, when the data provided from the internet network in accordance with location information stored in the location register are transferred to the indoor gateway, supplying the data communication terminal with the data through the indoor gateway and the indoor wireless connection module;

a sixth step of going through authentication of an outdoor location of the data communication terminal by the location register and storing the outdoor location into the location register when the indoor system ID information is not received; and

a seventh step of switching the connection of the data communication terminal from the indoor gateway to the outdoor wireless internet network and performing the first step again.

'728 Patent, Claim 12 (emphasis added).

54. As noted by Dr. Kelley and the Court, the language “a second step of determining whether when indoor system ID information is received by the data communication terminal and the received indoor system ID information is identical to indoor system ID information stored in the location register” would be clear to a POSITA. I agree that there is nothing confusing or

unclear about this claim language. This step unambiguously states a certain time – the “when” – and an action that occurs during that time – “determining whether ... the received indoor system ID information is identical to indoor system ID information stored in the location register.” Put another way, this “describes determining *whether* the received system ID information and stored system ID information are identical *when* the indoor system ID information is received by the data communication terminal.” *See* Kelley Decl. at ¶ 263 (emphasis in original). This is exactly what the Court found in the AT&T Case: “a person of ordinary skill in the art would understand that this step describes determining *whether* the received and stored indoor system ID information are identical *when* the information is received by the DCT.” *See* AT&T Case Dkt. No. 104 at pp. 52 (emphasis in original).

55. To the extent that Defendants here are advancing the same indefiniteness argument advanced by the defendants in the AT&T Case – *i.e.*, that the usage of the phrase “whether when” renders this term indefinite to a POSITA, I disagree. From the context and descriptions in the patent, including the claim itself, as confirmed by Dr. Kelley and the Court, I do not believe this would confuse a POSITA.

56. I note that KAIFI’s proposed construction is very similar to the specification’s statement that “a second step of determining whether the received indoor system ID information is identical to indoor system ID information stored in the location register when indoor system ID information is received by the data communication terminal” ’728 Patent at Abstract.

57. Accordingly, it is my opinion that a POSITA would have understood “second step of determining whether when indoor system ID information is received by the data communication terminal and the received indoor system ID information is identical to indoor system ID information stored in the location register” to mean “a second step of determining

whether the received indoor system ID information is identical to indoor system ID information stored in the location register when indoor system ID information is received by the data communication terminal.”

I declare under penalty of perjury that the foregoing is true and correct.

Executed this 12th day of May, 2021 at San Jose, California.

Thomas L Blackburn

Thomas Blackburn